AMENDMENTS TO THE SPECIFICATION:

Please enter the following amendments to the paragraph beginning on page 1, line 5 of the present application:

This is a continuation-in-part of application serial number 09/815,164, filed on March 22, 2001, now U.S. Patent No. 6,873,839.

Please enter the following amendments to the paragraph beginning on page 1, line 8 of the present application:

The present invention is directed to a method of routing radio telephone calls of an ad-hoc, peer-to-peer radio system, and, in particular, to such an ad-hoc, peer-to-peer radio system disclosed in copending application serial number 09/705,588, filed on November 3, 2001, entitled "Methods and Apparatus for Coordinating Channel Access to Shared Parallel Data Channels", now U.S. Patent No. 6,404,756, which application is incorporated by reference herein. The network system having coordinating channel access to shared parallel data channels via a separate reservation channel of U.S. Patent No. 6,404,756 ~~copending application serial number 09/705,588~~ is directed to a network system, such as radio network, where each node, or radio terminal, of the network is capable of serving as a node or hop of a routing path of a call from another, or to another radio terminal. In that system, communication between nodes or radio terminals is achieved using Carrier Sense Multiple Access with Collision Avoidance (CSMA/CA) protocol with the addition of multiple parallel data channels serviced by one

reservation channel. By dedicating a separate reservation channel for the multiple parallel data channels, collision-free access by all of the competing nodes or terminals of the service group of the network is greatly reduced. Communications between terminals or nodes is set up by information exchanged on the separate reservation channel, which information includes all of the call set-up information, such as data channel desired to be used for transferring voice, video or data, the desired power level of at least initial transmission, messaging such as Request-to-Send (RTS), Clear-to-Send (CTS), Not-Clear-to-Send (NCLS), Acknowledgment (ACK) for indicating reception of the transmitted call, Non-Acknowledgment (NACK) for indicating improper reception of the call, etc. In this system, in order to further ensure fast, adequate and collision-free transmission and reception, besides a primary modem typically provided with the transceiver of each node or terminal, a secondary modem is also provided which is dedicated to the reservation channel when the primary modem of the transceiver is occupied, such as when sending out data on a data channel. This system also provides for collision free transmission and reception between nodes or terminals by transmitting the reservation and data channels in time slots of time frames, with the information as to which time slot is to be used being included in the messaging transmitted by the reservation channel. Such a format not only provides collision-free transmission, but also allows for Quality-of-Service (QOS) for different types of Class-of-Service (COS), Thus, not only may voice and video be transmitted, besides data, but voice and data transmission may be prioritized, so that when competing calls vie for a data channel, the delay-dependent voice or video transmissions will take precedence. This prioritization is accomplished by assigning prioritized calls for transmission in earlier time slots of a time frame.

Please enter the following amendments to the paragraph beginning on page 3, line 5 of the present application:

The network system disclosed in U.S. Patent No. 6,404,756 ~~Application Serial Number 09/705,588~~ ensures that every node or terminal of a service set of terminals has the most information regarding all of other terminals of that service set, so that the choice of data channel to be used, any required delay is transmitting the call, information on power level, and the like, are checked and updated by each terminal by a practically continuous monitoring of the reservation channel, and utilizes protocol that provides collision-free channel access, which also emphasizes improving geographic reuse of the frequency spectrum.

Please enter the following amendments to the paragraph beginning on page 5, line 3 of the present application:

In commonly-owned U.S. application serial number 09/815,157, filed on March 22, 2001, entitled "Time Division Protocol for an Ad-Hoc, Peer-to-Peer Radio Network Having Coordinating Channel Access to Shared Parallel Data Channels with Separate Reservation Channel", now U.S. Patent No. 6,807,165, which application is incorporated by reference herein, there is disclosed a protocol method and algorithm for ad-hoc network system that is based on least-energy routing of calls from and between network radio terminals. In simple terms, the major component of the routing decision is to choose the route to the destination that uses the least amount of energy over the complete route. The major reason for this is that least-energy routing minimizes the radiated RF energy, in order to reduce interference between terminals. A consequence of this is that it creates the most efficient use of the power supply of the terminals.

Please enter the following amendments to the paragraph beginning on page 6, line 6 of the present application:

In above-mentioned commonly-owned U.S. Patent No. 6,807,165 ~~application serial number 09/815,157, filed on March 22, 2001~~, entitled "Time Division Protocol for an Ad-Hoc, Peer-to-Peer Radio Network Having Coordinating Channel Access to Shared Parallel Data Channels with Separate Reservation Channel", each radio terminal of the ad-hoc radio system initially determines a routing table which typically includes a plurality of different routing paths to a gateway, which is also called an TAP (Intelligent Access Point), by means of other radio terminals of the ad-hoc radio system forming a service group (SG), which other radio terminals serves as nodes, or relays for connecting a source radio terminal to a gateway. After this initial route-mapping, the ad-hoc radio terminal will then determine the most optimal gateway with which to connect, if more than one gateway is available, which decision is based on the most optimal path to a chosen gateway that provides least-energy connection, as described in above-mentioned commonly-owned U.S. Patent No. 6,807,165 ~~application serial number 09/815,157~~. Least-energy routing is most applicable and relevant to data calls, such as FTP and bulk file transfers. However, for voice and video transmissions, latency is a critical factor, whereby a routing path for voice and video may not necessarily be the most optimal as that for data transmissions.

Please enter the following amendments to the paragraph beginning on page 6, line 22 of the present application:

Reference is also had to commonly-owned pending provisional patent application serial number 60/297,769, filed on ~~May~~ June 14, 2001, entitled "Embedded Routing Algorithm under the Internet Protocol Routing Layer in a Software Architecture Protocol Stack", which application is incorporated by reference herein. The protocol stack of the system of this application defines the various algorithms used in establishing the connection of a radio terminal of the ad-hoc, peer-to-peer radio system disclosed in the present invention within its neighborhood of other terminals, with a gateway, and for setting necessary parameters for setting up and receiving calls, and updating necessary routing, power-level, quality-of-service parameters, as well as other essential processes used in the ad-hoc system of the present invention.

Please enter the following amendments to the paragraph beginning on page 11, line 5 of the present application:

Referring now to the drawings in greater detail, and to Figs. 1- 3 for now, an ad-hoc, peer-to-peer radio system is shown. The ad-hoc radio system consists of a series of radios or terminals 10, which may communicate directly with one to another, as shown in Fig. 1 A, or to other terminals 10 via link-routing where other, intermediate terminals are used, as shown in Fig. lB. For simplicity, only three such terminals 10 have been shown in Fig. 1 B, it being understood that the ad-hoc, peer-to-peer radio system will employ a multitude of such terminals, whereby the routing of a call from one terminal to another will employ a number of other, intermediate terminals. Such an ad-hoc, peer-to-peer radio system is disclosed in the above-mentioned commonly-owned applications serial number 60/246,833 and in. U.S. Patent No. 6,807,165 ~~09/815,157~~, and in priority application serial number 60/248,182. The present invention applies

to all types of ad-hoc, peer-to-peer radio systems, but has particular relevance to type disclosed in the above-mentioned ~~copending~~ U.S. Patent No. 6,404,756 ~~application serial number 09/705,588~~.

Please enter the following amendments to the paragraph beginning on page 12, line 4 of the present application:

Fig. 2 shows an extreme example of what happens without using least energy routing. The radio source uses a direct route to the destination. This route requires high power, which results in a large number of other radios being interfered with. Therefore, according to least energy routing disclosed in the above-mentioned, commonly-owned U.S. applications serial numbers 60/246,833 and ~~09/815,157~~ U.S. Patent No. 6,807,165 the source radio will choose an alternative routing path with a greater number of radio-hops through intermediate terminals, which will result in reduced interference in the other radio terminals.

Please enter the following amendments to the paragraph beginning on page 14, line 20 of the present application:

Referring to Fig. 5, the "Evaluation" subroutine 42 is shown. This subroutine determines whether or not its terminal's routing table needs updating based on the "check-battery status" subroutine of Figs. 4A and 4B (block 44 of Fig. 5). One the most recent status has been determined (block 46), it is determined which of the four status14 conditions exists: Infinite — block 48(code 11), high — block 50(code 10), low — block 52(code 01), or critical — block 54

(code 00). If the status determined in block 46 is the same as that of the previous results from the "check battery status" subroutine, then the program goes to block 56, indicating that the terminal's battery is stable, indicating that no change of status from the previous determination has occurred, whereby no change is made to the terminal's routing table. However, if there has been a change from the previous status, then the program will update the terminal's routing table to the appropriate code-value. The update need not necessarily be a downgrade; if, since the last status-check of the battery the battery had been recharged, then a status-upgrade to the routing table will ensue. The updated routing table will be transmitted to each adjacent terminal of the ad-hoc, peer-peer-radio system, preferably as part of the configuration data time-frame messaging transmitted and received on the control channel, as disclosed in commonly-owned U.S. application numbers 60/246,833 and ~~09/815,157~~ U.S. Patent No. 6,807,165, which are incorporated by reference herein. Radio terminals of the ad-hoc, peer-to-peer system thereof routinely exchange routing tables with their neighbors, either after some configurable time delay, which is typically several seconds, or when they note a change in the environment or view of the neighbors. The battery condition of the terminal then becomes a new and critical factor or parameter of the routing update message, which, according to the present invention, is incorporated into the updated routing table messaging.

Please enter the following amendments to the paragraph beginning on page 19, line 14 of the present application:

Routing a packet of data through an ad-hoc radio network is typically achieved through a number of intermediate nodes, and not done directly between two points. The algorithms that determine the route are based on the shortest distance or the least power required, as set forth in

above-mentioned U.S. Patent No. 6,807,165 ~~application serial number 09/815,157~~. These algorithms do not produce a predictable delivery of packets. Packets may be delayed because of congestion in intermediate nodes, and delivery failure may occur because of noise on the radio links. The algorithm of the present invention modifies the algorithm described in the above-mentioned U.S. Patent No. 6,807,165 ~~copending application serial number 09/815,157~~, and determines the chosen optimal routing path based on packet content - class-of-service (CoS).

Please enter the following amendments to the paragraph beginning on page 20, line 6 of the present application:

When an ad-hoc radio terminal first initializes, it will advertise its presence and initially establish a chosen routing path to a gateway, as described in above-mentioneds U.S. Patent No. 6,807,165 ~~application serial number 09/815,157~~. However, in accordance with the present invention, the chosen routing path may not necessarily be the same for voice, video and data transmissions, because of the above-described differing constraints among them. The routing information collected by the radio terminal source includes the number of nodes that make up each potential routing path, as well as the link-level interference and noise between each node, and the congestion level of each intermediate node. The noise level is the primary determinant of BER due to the interference, although congested nodes may also impact data errors if they are so overloaded as to cause failure of packet-delivery. The number of hops required is also a primary determinant in determining latency, along with congestion. Each additional hop of a path increases the latency by a minimum of the processing delay to relay the packet, which is typically 5 millisec. Congestion levels of a node also increases latency. The algorithm of the present invention, in addition to considering, also takes into consideration the class-of-service, whereby the chosen optimal routing path for a call is based on latency and bit error rate.